UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/716,174	11/17/2003	Quan Nguyen	70-000150US	3901

22798 7590 04/19/2005

QUINE INTELLECTUAL PROPERTY LAW GROUP, P.C.
P O BOX 458
ALAMEDA, CA 94501

EXAMINER	
YU, MELANIE J	

ART UNIT	PAPER NUMBER
1641	

DATE MAILED: 04/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/716,174	NGUYEN ET AL.	
	Examiner	Art Unit	
	Melanie Yu	1641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 March 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-61 and 201-221* is/are pending in the application.

4a) Of the above claim(s) *201-221* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-61* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 9/28/04 & 9-20-04
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of group I, claims 1-61, in the reply filed on 7 March 2005 is acknowledged. Regarding the species election, Applicant's election of

Group A- fluorescent signal;

Group B- a polypeptide;

Group C- a protease;

Group D- an SH2 domain;

Group E- a polypeptide;

Group F- a mitochondrion; and

Group G- a mitochondrial matrix-targeting sequence;

is acknowledged. Claims 12 and 14-17 are withdrawn as being drawn to non-elected species. Claims 201-221 are withdrawn as being drawn to a non-elected invention.

Status of the Claims

2. Claims 12, 14-17 and 201-221 are withdrawn. Claims 62-200 and 222-303 are canceled. Claims 1-61 and 201-221 are currently pending.

Specification

3. The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code. Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-11, 13 and 18-61 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claims1 and 2, it is unclear how the first caging groups are associated with the one or more molecules. It is unclear whether the first caging groups are considered part of the first state of the substrate. Furthermore, it is unclear whether the enzyme can act on the substrate while the first caging groups are associated with the one or more molecules.

Regarding claim 4, it is unclear whether the first caging groups require any further product limitations in order to prevent an enzyme from acting on the substrate. The claim is therefore drawn to a method of preventing an enzyme from acting on a substrate.

Claim 5 is drawn to a method of removing caging groups, and does not appear to recite further product limitations. Therefore, it is unclear whether the removal requires any further product limitations to the product of claim 1 or 2.

Regarding claim 11, it is unclear whether the composition comprises the same enzyme, cell or cell sensor as those recited in claim 2. It is vague as to whether the composition comprises more than one enzyme, cell or cell senor.

With respect to claims 19, 29 and 36, it is unclear whether the one polypeptide is the same as the one or more molecules recited in claim 1 or 2, or whether the composition further comprises another molecule being a polypeptide. Furthermore, it would then be unclear whether the one or more molecules comprises the polypeptide or if the polypeptide is the substrate.

Claims 23, 31 and 40 recite the first or second label being located at the N-terminus and the other of the first or second label being located at the C-terminus. It is unclear whether the serine, threonine or tyrosine residues must also be located at the N- or C-terminus since the first label is located at the serine, threonine or tyrosine residue.

With respect to claims 22 and 30, the term "involved" is vague because it is unclear how amino acid residues are involved in binding the kinase. It is unclear if the kinase binds directly to these amino acids or if the amino acids merely assist in the binding of kinase.

Claim 25 is drawn to a method of triggering a conformational change and does not appear to provide further product limitations to the composition of claim 21. Therefore, it is unclear whether triggering a conformational change in the polypeptide requires any product limitations. The claim is further unclear because it is vague as to whether a phosphobinder is required to bind to the substrate, or whether the conformational change occurs by other means.

Regarding claims 25-44, the term "phosphobinder" is vague and indefinite. It is unclear what compounds are encompassed by a phosphobinder, and no definition is provided in the specification. It is unclear if a phosphobinder is any compound or molecule that is capable of binding to a phosphorylated substrate. For the purposes of this office action, a phosphobinder is interpreted as a molecule capable of binding to a phosphorylated substrate.

With respect to claims 27, 34, 39 and 43, it is unclear what product limitations are required for the first, second and third caging groups to be removed under different conditions. It is unclear if the caging groups must have different wavelengths for removal or if they must only be different caging groups.

Claims 29 and 36 recite methods such as phosphorylation of the substrate resulting in binding of a phosphobinder, the first and second label not interacting when the substrate is not phosphorylated, and the phosphorylation resulting in binding of a phosphobinder. These limitations are drawn to methods and do not appear to recite any further product limitations to the composition of claim 18. It is unclear whether the physical limitation of a phosphobinder is intended to be part of the composition or if a polypeptide comprising a substrate for kinase and a first and second label would be able to bind a phosphobinder. It is unclear whether applicant is claiming a phosphobinder attached to a phosphorylated substrate, or if the peptide is meant to comprise only a substrate that has not been phosphorylated.

With respect to claims 48 and 53, it is unclear whether the composition further comprises a polypeptide or whether the cellular delivery module and subcellular delivery module are a polypeptide which is the one or more molecules recited in claims 1 and 2.

With respect to claim 59, it is unclear whether the first and second oligonucleotides are the one or more molecules recited in claims 1 and 2, or whether the composition comprises the one or more molecules as well as the first and second oligonucleotides.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-11, 18-20, 47, 48, 52 and 61 are rejected under 35 U.S.C. 102(b) as being anticipated by Fay et al. (US 5,998,580).

Fay et al. teaches claims 1, 2 and 61 wherein a composition comprising: a cell (col. 12, lines 1-5) comprising a caged sensor for detecting an activity of an enzyme, which caged sensor comprises: one or more molecules collectively comprising: a substrate for the enzyme, wherein the substrate is in a first state on which the enzyme can act, thereby converting the substrate to a second state, wherein the first state is not converted to the second state by cleavage by the enzyme (col. 7, lines 7-21); a first label, wherein a first signal is exhibited by the first label when the substrate is in its first state is distinguishable from a second signal exhibited by the first label when the substrate is in its second state (col. 12, lines 57-67); and one or more first caging groups associated with the one or more molecules, the first caging groups inhibiting the enzyme from acting upon the substrate (col. 7, lines 7-21 and 39-47). Fay et al. discloses the components of claim 1 and 2 in the same entity, therefore the components would have been compiled to encompass a kit in order to provide the composition of Fay et al.

Regarding claims 3, 4, 7 and 9, Fay et al. teach the first caging groups preventing the enzyme from acting upon the substrate (col. 1, lines 60-63) and inhibiting the enzyme from acting upon the substrate by at least about 90% (activity is inhibited to less than 10%, col. 20, lines 20-27). Fay et al. further teach first caging groups physically connected to the substrate and covalently attached to one or more molecules (col. 14, lines 47-53).

With respect to claims 5 and 6, Fay et al. teach the removal of the first caging groups permitting the enzyme to act upon the substrate (irradiation removes cages, col. 1, lines 60-63). Fay et al. further teach the first label being a fluorophore and exhibiting a fluorescent signal (col. 12, lines 57-67).

Regarding claim 8, Fay et al. teach the first caging groups removable by photolysis by exposure to light of 350 nm (col. 10, line 8), which is encompassed by the recited rage of between about 400 and 700 nm.

With respect to claims 10 and 11, Fay et al. teach a substrate comprising one or more polypeptides (col. 4, lines 26-28; col. 6, lines 2-14), and the composition further comprising a cell (col. 12, lines 1-5).

With respect to claims 18-20, Fay et al. teach the enzyme being a protein kinase that phosphorylates tyrosine, serine and threonine (col. 13, lines 26-31, line 60). Fay et al. further teach one polypeptide comprising the first label and substrate for the kinase (col. 13, lines 26-31), the substrate comprising a tyrosine and/or threonine residue capable of being phosphorylated by the kinase (col. 18, lines 6-15; col. 13, lines 50-64), wherein the first label is located at the threonine residue and exhibits a first signal when the residue is not phosphorylated and a second signal when the residue is phosphorylated (col. 12, lines 57-67). Fay et al. also teach the first caging groups located on one or more amino acid residues involved in binding the kinase (col. 18, lines 6-15).

Regarding claims 47, 48 and 52, Fay et al. teach the one or more molecules comprising a polypeptide (col. 4, lines 26-28; col. 6, lines 2-14), which comprises the physical limitations set forth in claims 47, 48 and 52, and can therefore be associated with at least one cellular delivery module or at least one sub cellular delivery module.

6. Claims 2 and 57-60 are rejected under 35 U.S.C. 102(b) as being anticipated by Barrett et al. (US 5,252,743).

Barrett et al. teach a composition comprising: a caged sensor comprising: more than one molecule collectively comprising: a substrate for an enzyme, wherein the substrate is in a first station which the enzyme can act, thereby converting the substrate to a second state, wherein the first state is not converted to the second state by cleavage of the enzyme (anti-ligands include substrates for ligands, col. 4, lines 21-54; wherein ligands are enzymes, col. 5, lines 3-11; col. 10, lines 28-37; col. 10, lines 40-63), a first label, wherein a first signal exhibited by the first label is when the substrate is in its first state (first state is unbound with no signal and second state is bound with a signal, col. 21, lines 36-44), and one or more caging groups associated with the a molecule inhibiting an enzyme from acting on a substrate (caged biotin attached to a substrate, col. 4, lines 22-32; col. 9, lines 54-68).

Regarding claims 59 and 60, Barrett et al. teach the caged sensor comprising a first oligonucleotide complementary (ligand is an oligonucleotide, col. 5, lines 3-11) to a second oligonucleotide bound (anti-ligand is an oligonucleotide, col. 4, lines 21-54) to a matrix, which is a surface, at a predetermined location within an array (col. 10, lines 31-35) comprising other oligonucleotides (anti-ligand is bound to a matrix, col. 7, lines 43-54).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fay et al. (US 5,998,580) in view of Tien et al. (WO 97/28261).

Fay et al., as applied to claim 1, teach a composition comprising a cell comprising a caged sensor for detecting the activity of an enzyme, but fail to teach the enzyme being a protease.

Tien et al. teach protease activity monitored through FRET (pg. 4, lines 2-23), in order to determine and characterize substrate cleavage sequences of proteases.

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to include in the composition of Fay et al., monitoring the activity of a protease enzyme as taught by Tien et al., in order to measure a change in enzyme intracellular activity, wherein the enzyme is protease.

8. Claims 21, 22, 24-27, 29, 30, 32-34, 36-39, 41-43, 45 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fay et al. (US 5,998,580) in view of Craig et al. (US 2003/0082827).

Fay et al., as applied to claims 1, 2 and 18, teach a composition for detecting activity of an enzyme, but fail to teach a second label or quencher.

Craig et al. teach a polypeptide comprising a substrate for a kinase (par. 0118-0122) comprising a first label and a quencher (par. 0084-0085), wherein the first label and the quencher interact to produce a first signal when the substrate is not phosphorylated, and wherein phosphorylation of the substrate prevents to prevent the interaction of the first label and the quencher thereby resulting in production of the second signal (pars. 0113 and 0118-0120), in order to detect conformational changes upon phosphorylation.

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to include in the composition of Fay et al., a quencher as taught by Craig et al., in order to examine enzymatic properties of those in serum enzymes in combination with antibodies that might inhibit one isoform of the enzyme.

Regarding claim 22, Fay et al. teach the first caging groups located on the amino acid residues involved in binding the kinase (col. 18, lines 6-15).

With respect to claims 24 and 25, Craig et al. teach the first and second labels being hydrophobic fluorophores, wherein the first label is FITC and the second label is rhodamine (par. 0119). Craig et al. further teach the phosphorylation of the substrate triggering a conformational change in the polypeptide (par. 0118-0120).

Regarding claims 26 and 27, Fay et al. teach a phosphobinder associated with one or more second caging groups (methyl ester, col. 7, lines 7-17), removable under different conditions than the first caging groups (first groups removable by irradiation, second groups remain caged during irradiation, col. 7, lines 7-17), and the presence prevents the phosphobinder from binding the phosphorylated substrate.

Regarding claim 29, Fay et al., as applied to claim 18, teaches a polypeptide comprising a substrate for kinase, a first label, and a phosphobinder (phosphopeptide, col. 7, lines 7-17), but fails to teach a quencher.

Craig et al. teach a polypeptide comprising a first label and a quencher (par. 0084-0085), in order to detect conformational changes upon phosphorylation.

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to include in the composition of Fay et al., a quencher as taught by Craig et al., in order to examine enzymatic properties of those in serum enzymes in combination with antibodies that might inhibit one isoform of the enzyme.

With respect to claim 30, 33 and 34, Fay et al. teach the first caging groups located on amino acid residues involved in binding kinase (col. 18, lines 6-15). Fay et al. teach a phosphobinder associated with one or more second caging groups (methyl ester, col. 7, lines 7-17), removable under different conditions than the first caging groups (first groups removable by irradiation, second groups remain caged during irradiation, col. 7, lines 7-17), and the presence prevents the phosphobinder from binding the phosphorylated substrate.

Regarding claim 32, Craig et al. teach the first and second labels being fluorophores capable of exhibiting FRET (pars. 0118-0120).

Regarding claim 36, Fay et al., as applied to claim 18, teach a polypeptide comprising a substrate for kinase associated with a first caging group (tyrosine, col. 18, lines 39-43), a second substrate associated with a third caging group (glysine, col. 18, lines 39-43), a first label and a phosphobinder, but fail to teach a quencher and a third label.

Craig et al. teach a polypeptide substrate comprising a quencher (pars. 0084-0085) and a third label ($p47^{phox}$ binds to a phosphorylated substrate and is labeled with a third label of fluorescein, par. 0145), in order to monitor enzymatic activity by measuring the decrease in fluorescein.

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to include in the composition of Fay et al., a polypeptide substrate comprising a quencher and a third label as taught by Craig et al., in order to examine enzymatic properties of those in serum enzymes in combination with antibodies that might inhibit one isoform of the enzyme.

With respect to claims 37-39, Fay et al. teach a second substrate for a different kinase (col. 19, line 60-col. 20, line 5). Fay et al. further teach the first caging groups located on amino acid residues involved in binding the kinase that phosphorylates the first substrate, and the third caging groups located on the amino acid residues involved in binding the kinase (col. 18, lines 39-43; col. 19, line 60-col. 20, line 5). Fay et al. also teach third caging groups preventing phosphorylation of the second substrate and removable under different conditions than the first caging groups preventing phosphorylation of the substrate (col. 7, lines 57-67; caged glysine and caged tyrosine are caged with different compounds that are removed at different wavelengths, col. 17, line 54-col. 18, line 14).

Regarding claim 41, Craig et al. teach the third and fourth labels capable of exhibiting FRET (pars. 0118-0120).

With respect to claims 42 and 43, Fay et al. teach a phosphobinder associated with second caging groups, which prevent the phosphobinder from binding the phosphorylated second

substrate (col. 7, lines 7-17), and the second caging groups removable under different conditions than the first and third caging groups (col. 7, lines 57-67; caged glysine and caged tyrosine are caged with different compounds that are removed at different wavelengths, col. 17, line 54-col. 18, line 14; methyl ester remains intact and is removed only after phosphorylation occurs, col. 7, lines 7-17).

Regarding claims 45 and 46, Craig et al. teach a fifth label that exhibits a fifth signal independent of the state of the substrate (par. 0026), wherein the fifth label is a fluorophore (par. 0068).

Claims 23, 31 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fay et al. in view of Craig et al. further in view of Truong et al. (the use of FRET imaging microscopy to detect protein-protein interactions and protein conformational changes *in vivo*, Current opinion in Structural Biology, 2001, 11, pgs. 573-578).

Fay et al. in view of Craig et al., as applied to claims 21, 29 and 36, teach a polypeptide comprising a first and second label, but fail to teach the first and second labels located on the N- and C-terminus of the polypeptide.

Truong et al. teach a first label located at the N-terminus of a polypeptide and a second label located at the C-terminus of a polypeptide (intermolecular FRET, Fig. 1a, pg. 575, left column, second paragraph), in order to examine the phosphorylation of a transcription factor cyclic adenosine monophosphate.

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to include in the composition of Fay et al. in view of Craig et al., a first label and a second label capable of exhibiting FRET on the N- and C- terminus of a polypeptide

as taught by Truong et al., in order to provide a more sensitive probe for detecting protein conformational changes *in vivo* in real-time.

9. Claims 28, 35 and 44 rejected under 35 U.S.C. 103(a) as being unpatentable over Fay et al. in view of Craig et al. further in view of Endo et al. (A new protein containing an SH2 domain that inhibits JAK kinases, Nature, 1997, pgs 921-924).

Fay et al. in view of Craig et al., as applied to claims 21, 29 and 36, teach a polypeptide comprising a phosphobinder, but fail to teach the phosphobinder comprising an SH-2 domain.

Endo et al. teach a phosphobinder comprising an SH-2 domain (JAB protein contains a central SH2 domain, pg. 921, right column, first paragraph after abstract), in order to inhibit kinase interaction.

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to include in the composition of Fay et al. in view of Craig et al., a phosphobinder comprising an SH-2 domain as taught by Endo et al., in order to further reduce tyrosine-kinase activity and phosphorylation of the tyrosine substrate.

10. Claims 51, 52, 53 and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fay et al. in view of Marriott et al. (Caged peptides and proteins: new probes to study polypeptide function in complex biological systems, Trends in Plant Science, 1999, Vol. 4, No. 8, pgs 330-334).

Fay et al., as applied to claims 1, 2 and 47, teach a composition comprising a polypeptide, which can be used to mediate introduction of a sensor into a cell, but fail to teach the module further comprising a fourth caging group.

Marriott et al. teach a caged polypeptide comprising a caging group to inhibit the mediation of the molecule into a cell (Fig. 1(b); pg. 331, last sentence left column-last sentence middle column), in order to investigate the function and kinetics of specific proteins.

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to include in the composition of Fay et al., a fourth caging group the presence of which mediates the introduction of a sensor into a cell as taught by Marriott et al., in order to investigate the membrane receptor signaling of myosin light chain kinase.

With respect to claims 53 and 56, Marriott et al. further teach a subcellular delivery module being a polypeptide, comprising a binding domain that mediates localization of the sensor by binding to a target protein (Fig. 1(a); caged peptides identify proteins; pg. 331, left column, second paragraph, "Caged peptides"). Marriott et al. also teach the subcellular delivery module associated with a fifth caging group, the presence of which prevents the subcellular delivery module from mediating subcellular localization of the sensor (Fig. 1(b); pg. 332, first paragraph, left column-pg. 333, first paragraph, left column).

11. Claims 49, 50, 54 and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fay et al. in view of Marriott et al. further in view of McGall et al. (US 5,412,087)

Fay et al. in view of Marriott et al., as applied to claims 47 and 52, teach a composition comprising a cellular and subcellular delivery modules being polypeptides, but fail to teach the cellular and subcellular delivery modules covalently attached to one or more molecules.

McGall et al. teach a cellular or subcellular delivery module (polypeptide anti-ligand, col. 4, lines 29-57) covalently attached to a molecule (ligand, col. 4, lines 58-66) and reversible by

exposure to light and the light pattern is changed to reversibly bind ligands, col. 8, lines 50-60), in order to immobilize an anti-ligand to a surface.

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to include in the composition of Fay et al. in view of Marriott et al., a reversibly covalent attachment between a molecule and a cellular or subcellular delivery module as taught by Barrett et al., in order to provide stable and restricted attachment between molecules.

Conclusion

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie Yu whose telephone number is (571) 272-2933. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on (571) 272-0823. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Melanie Yu
Patent Examiner
Art Unit 1641

LONG V. LE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600
04/15/07